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## NOTICE OF ALLOWANCE AND FEE(S) DUE

25397

7590

05/02/2008

JENKINS, WILSON, TAYLOR & HUNT, P. A.  
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DURHAM, NC 27707

EXAMINER

CHU, WUTCHUNG

ART UNIT

PAPER NUMBER

2619

DATE MAILED: 05/02/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,233	10/01/2003	Edward Y. Qian	149772	6397

TITLE OF INVENTION: METHODS AND SYSTEMS FOR PER-SESSION DYNAMIC MANAGEMENT OF MEDIA GATEWAY RESOURCES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/04/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

## HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to:** **Mail** **Mail Stop ISSUE FEE**  
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**Alexandria, Virginia 22313-1450**  
**or Fax** **(571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

25297 7590 05/02/2008

**JENKINS, WILSON, TAYLOR & HUNT, P. A.**  
**3100 TOWER BLVD., Suite 1200**  
**DURHAM, NC 27707**

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/676,233

10/01/2003

Edward Y. Qian

1497/2

6397

**TITLE OF INVENTION: METHODS AND SYSTEMS FOR PER-SESSION DYNAMIC MANAGEMENT OF MEDIA GATEWAY RESOURCES**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1440	\$300	\$0	\$1740	08/04/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHU, WUTCHUNG	2619	370-401000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 \_\_\_\_\_  
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 \_\_\_\_\_  
3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.  
☐ Payment by credit card. Form PTO-2038 is attached.  
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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10/676,233	10/01/2003	Edward Y. Qian	1497/2	6397
EXAMINER				
CHU, WUTCHUNG				
ART UNIT			PAPER NUMBER	

2619

DATE MAILED: 05/02/2008

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 914 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 914 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

**Notice of Allowability****Application No.**

10/676,233

**Applicant(s)**

QIAN ET AL.

**Examiner**

WUTCHUNG CHU

**Art Unit**

2619

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/7/2008.
2. ☒ The allowed claim(s) is/are 2-39, 41, 42.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of the:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.  
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.  
**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

**DETAILED ACTION**

***Allowable Subject Matter***

1. The following is an examiner's statement of reasons for allowance:

The prior arts of record fail to teach the combinational limitations of

**Regarding claim 2,**

- (a) pooling voice server resources provided by a plurality of voice chips in the media gateway, wherein pooling voice server resources includes combining M voice server cards into the shared pool of voice server resources, M being an integer, wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m^{\text{th}}$  voice server card, and each voice chip supports  $K_{mn}$  voice channels,  $K_{mn}$  being an integer representing the number of channels of the  $n^{\text{th}}$  voice chip on the  $m^{\text{th}}$  voice server card;
- (b) for each new call/session originating from the packet network, dynamically allocating a voice chip from the pooled voice server resources;
- (c) dynamically assigning a Logical resource identifier to each session;
- (d) receiving a plurality of voice packets relating to a call/session from a plurality of different external networks and sending a plurality of voice packets relating to the call/session to the external networks; and
- (e) processing voice packets associated with each session using the voice

chip dynamically assigned to the session.

**Regarding claim 9,**

- a. Pooling voice server resources provided by a plurality of voice chips in the media gateway, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer, wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer repressing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $k_{mn}$  voice channels,  $k_{mn}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card;
- b. for each new call/session originating from the packet network, dynamically allocating a voice chip from the pooled voice server resources wherein dynamically allocating a voice chip from the pooled voice server resources includes allocating the voice chip independently of a remote endpoint assigned to each session;
- c. dynamically assigning a logical resource identifier to each session;
- d. and sending a plurality of voice packets relating to the call/session to the external networks;
- e. terminating a data link layer connection associated with each session at one of a plurality of network interface cards within the media gateway; and
- f. processing voice packets associated with each session using the voice chip dynamically assigned to the session, wherein processing voice packets associated with each session using the assigned voice processing resource

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includes forwarding packets from the network interface card to the voice processing resource using the logical resource identifier assigned to each session and one of more addresses in each received packet and wherein forwarding each packet to the assigned voice processing resource includes forwarding each packet by comparing a destination IP address, destination UDP port, source UDP port combination in each packet to a plurality of local IP address, local UDP port, remote IP address, remote UDP port combinations assigned to active sessions in the media gateway.

**Regarding claim 17,**

- (a) pooling voice server resources provided by a plurality of voice chips in the media gateway;
- (b) for each new call/session, dynamically allocating a voice chip from the pooled voice server resources;
- (c) dynamically assigning a logical resource identifier to each session;
- (d) receiving a plurality of voice packets relating to a call/session from a plurality of different external networks and sending a plurality of voice packets relating to the call/session to the external networks;
- (e) terminating a data link layer connection associated with each session at one of a plurality of network interface cards within the media gateway; and
- (f) processing voice packets associated with each session using the voice chip dynamically assigned to the session wherein processing voice packets associated with each session using the assigned voice

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processing resource includes forwarding packets from the network interface card to the voice processing resource using the logical resource identifier assigned to each session and one or more addresses in each received packet and wherein forwarding each packet to the assigned voice processing resource includes forwarding each packet by comparing a destination IP address, destination UDP port combination in each packet to a plurality of destination IP address, destination UDP port combinations assigned to active sessions in the media gateway.

**Regarding claim 18,**

A method for dynamic media

gateway resource management, the method comprising:

at a media gateway for switching voice packets between a plurality of input ports and output ports;

(a) pooling voice server resources provided by a plurality of voice chips in the media gateway;

(b) for each new call/session, dynamically allocating a voice chip from the pooled voice server resources;

(c) dynamically assigning a logical resource identifier to each session;

(d) receiving a plurality of voice packets relating to a call/session from a plurality of different external networks and sending a plurality of voice packets relating to the call/session to the external networks;

(e) terminating a data link layer connection associated with each session at one of a



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plurality of network interface cards within the media gateway; and

(f) processing voice packets associated with each session using the voice chip dynamically assigned to the session wherein processing voice packets associated with each session using the assigned voice processing resource includes forwarding packets from the network interface card to the voice processing resource using the logical resource identifier assigned to each session and one or more addresses in each received packet and wherein forwarding each packet to the assigned voice processing resource includes forwarding each packet by comparing a destination IP address, destination UDP port, source IP address, source UDP port combination in each packet to a plurality of local IP address, local UDP port, remote IP address, remote UDP port combinations assigned to active sessions in the media gateway.

**Regarding claim 19,**

(a) a plurality of voice chips being pooled in a common resource pool for performing voice processing operations on media packets associated with a session, wherein pooling voice server resources includes combining M voice server cards into the shared pool of voice server resources, M being an integer, wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer representing the number of voice chips on the mth voice server card, and each voice chip supports  $K_n$  on voice channels,  $K_n$  being an integer representing the number of channels of the nth voice chip on

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the mm voice server card where  $N_m$  and  $K_{m\_n}$  are different for at least some of the voice chips;

(b) a plurality of network interfaces coupled to the voice chips for forwarding incoming media packets to the voice chips and forwarding outbound media packets from the voice chips to external networks; and

(c) a dynamic resource manager operatively associated with the packet interfaces and the voice chips for dynamically allocating voice chips from the common resource pool to process new sessions on a per session basis and dynamically assigning a logical resource identifier to each session.

**Regarding claim 27,**

A system for dynamic media gateway resource allocation on a per session basis, the system comprising:

(a) a plurality of voice chips being pooled in a common resource pool for performing voice processing operations on media packets originating from a packet network, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer, wherein each voice server card includes voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $K_{m\_n}$  voice channels,  $K_{m\_n}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card where  $N_m$  and  $K_{m\_n}$  are

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different for at least some of the voice chips;

(b)

a plurality of network interfaces coupled to the voice chips for forwarding incoming media packets originating from the packet network to the voice chips and forwarding outbound media packets from the voice chips to external networks wherein each network interface includes a resource allocation table being dynamically constructed from incoming media packets and wherein the resource allocation table includes a local IP address and local UDP port combination assigned to each session; and

(c)

a dynamic resource manager operatively associated with the packet interfaces and the voice chips for dynamically allocating voice chips from the common resource pool to process new sessions originating from the packet network on a per session basis and dynamically assigning a logical resource identifier to each session.

**Regarding claim 30,**

A system for dynamic media gateway resource allocation

on a per session basis, the system comprising:

(a) a plurality of voice chips being pooled in a common resource pool for performing voice processing operations on media packets, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer,

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wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $K_{m,n}$  voice channels,  $K_{m,n}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card where  $N_m$  and  $K_{m,n}$  are different for at least some of the voice chips;

(b) a plurality of network interfaces coupled to the voice chips for forwarding incoming media packets to the voice chips and forwarding outbound media packets from the voice chips to external networks; and

(c) a dynamic resource manager operatively associated with the packet interfaces and the voice chips for dynamically allocating voice chips from the common resource pool to process new sessions on a per session basis wherein the manager dynamically assigning a logical resource identifier to each session and dynamically assigns a session identifier to each new session and wherein the session identifier includes a local IP address and local UDP port combination.

**Regarding claim 34,**

A computer program product comprising computer executable instructions embodied in a tangible computer readable medium and which when executed by a processor of a computer perform steps comprising:

(a) pooling voice server resources provided by a plurality of voice chips in the

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media gateway, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer, wherein each voice server card includes voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $K_{mn}$  voice channels,  $K_{mn}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card;

(b) for each new call/session originating from the packet network, dynamically allocating a voice chip from the pooled voice server resources;

(c) dynamically assigning a logical resource identifier to each session, wherein dynamically assigning a logical resource identifier to each session includes dynamically allocating a local IP address and local UDP port for each session;

(d) receiving a plurality of media packets relating to a session from a plurality of different external networks and sending a plurality of media packets relating to the session to the external networks; and

(e) processing the ~ media packets associated with each session using the voice chip dynamically assigned to the session.

**Regarding claim 37,**

A computer program product comprising computer executable instructions embodied in a tangible computer readable medium and which when executed by a processor of a computer perform steps comprising:

(a) for each new call/session, dynamically allocating a voice chip from a pool of voice

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chips to process voice packets associated with the session, wherein dynamically allocating a voice chip from a pool of voice chips includes dynamically allocating a channel from a set of

$\sim_{m=1}$  to a  $\sim_{n=1}$  to  $NmKmn$  voice channels, where  $M$  is an integer representing a number of voice server cards,  $Nm$  is an integer representing the number of voice chips equipped on the  $m$ -th voice server card, and  $Kmn$  is an integer representing the number of voice channels of the  $n$ -th voice chip of the  $m$ -th voice server card;

(b) dynamically assigning a logical resource identifier to each session, wherein dynamically assigning a logical resource identifier to each session includes dynamically allocating a local IP address and local UDP port for each session;

(c) receiving a plurality of voice packets relating to a session from a plurality of different external networks and sending a plurality of voice packets relating to the session to the external networks; and

(d)

processing the voice packets associated with each session using the voice chip dynamically assigned to the session.

**Regarding claim 38,**

A computer program product comprising computer executable instructions embodied in a tangible computer readable medium and which when executed by a processor of a computer perform steps comprising:

(a) for each new call/session, dynamically locating a voice chip from a pool of voice chips to process voice packets associated with the session, wherein dynamically

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allocating a voice chip from a pool of voice chips includes dynamically allocating a channel from a set of

$\sim=1$  to  $a \sim n$  to  $N_m K_{m \sim}$  voice channels, where  $M$  is an integer representing a number of voice server cards,  $N_m$  is an integer representing the number of voice chips equipped on the  $m$ -th voice server card, and  $K_{m \dots n}$  is an integer representing the number of voice channels of the  $n$ -th voice chip of the  $m$ -th voice server card, wherein  $N_m$  and  $K_{mn}$  are different for at least some of the voice chips;

(b) dynamically assigning a logical resource identifier to each session, wherein dynamically assigning a logical resource identifier to each session includes dynamically allocating a local IP address and local UDP port for each session;

(c) receiving a plurality of voice packets relating to a session from a plurality of different external networks and sending a plurality of voice packets relating to the session to the external networks; and

(d) processing the voice packets associated with each session using the voice chip dynamically assigned to the session.

#### **Regarding claim 39,**

A computer program product comprising computer executable instructions embodied in a tangible computer readable medium and which when executed by a processor of a computer perform steps comprising:

(a) for each new call/session, dynamically allocating a voice chip from a pool of voice chips to process voice packets associated with the session, wherein dynamically allocating a voice chip from a pool of voice chips includes dynamically allocating a

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channel from a set of

$\sim 1$  to  $a \sim 1$  to  $a_{Mn}$  voice channels, where  $M$  is an integer representing a number of voice server cards,  $N_m$  is an integer representing the number of voice chips equipped on the  $m$ -th voice server card, and  $K_{m \sim n}$  is an integer representing the number of voice channels of the  $n$ -th voice chip of the  $m$ -th voice server card, wherein  $N_m$  and  $K_{m \sim n}$  are the same for all of the voice chips;

(b) dynamically assigning a logical resource identifier to each session, wherein dynamically assigning a logical resource identifier to each session includes dynamically allocating a local IP address and local UDP port for each session;

(c) receiving a plurality of voice packets relating to a session from a plurality of different external networks and sending a plurality of voice packets relating to the session to the external networks; and

(d)

processing the voice packets associated with each session using the voice chip dynamically assigned to the session.

Lin et al. (US6633563) discloses a content addressable memory (CAM) having a search field, a mask and an output for each CAM location is used to efficiently determine a processor for processing IP packets, with each IP packet being received as a sequence of cells. IP packets may be assigned to a processor (group) based on an examination of the header data, potentially including IP header and other higher layer protocols headers. The search field of a CAM location is pre-stored with header data, and the bit



positions to be searched in the location are specified by using a mask. The output of the location identifies the processor group for executing packets with headers matching the search field, with only the bits specified by the mask being compared. When a first cell of an IP packet is received, the header data is provided as an input to the CAM, and the output identifies the processor (group) for executing the IP packet. However, Lin et al. does not teach the combinational limitations of:

- a. Pooling voice server resources provided by a plurality of voice chips in the media gateway, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer, wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $k_{mn}$  voice channels,  $k_{mn}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card;
- b. for each new call/session originating from the packet network, dynamically allocating a voice chip from the pooled voice server resources wherein dynamically allocating a voice chip from the pooled voice server resources includes allocating the voice chip independently of a remote endpoint assigned to each session;
- c. dynamically assigning a logical resource identifier to each session;
- d. and sending a plurality of voice packets relating to the call/session to the external networks;

- e. terminating a data link layer connection associated with each session at one of a plurality of network interface cards within the media gateway; and
- f. processing voice packets associated with each session using the voice chip dynamically assigned to the session, wherein processing voice packets associated with each session using the assigned voice processing resource includes forwarding packets from the network interface card to the voice processing resource using the logical resource identifier assigned to each session and one of more addresses in each received packet and wherein forwarding each packet to the assigned voice processing resource includes forwarding each packet by comparing a destination IP address, destination UDP port, source UDP port combination in each packet to a plurality of local IP address, local UDP port, remote IP address, remote UDP port combinations assigned to active sessions in the media gateway.

Carew et al. (US6879667) discloses a voice gateway (18) in a telecommunications network (1) includes a plurality of telephony port modules (102). Each telephony port module (102) receives telephony voice signals from a public switched telephony network (13). Each telephony port module (102) includes one or more digital signal processors (110) that perform one or more processing functions on the telephony voice signals. A particular telephony port module (102) may receive a telephony voice signal and use its associated digital signal processor (110) to process the received telephony voice signal or transfer the received telephony voice signal for

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processing to any digital signal processor (110) on any telephony port module (102).

Telephony signals may also be transferred for processing to digital signal processors (110) on another voice gateway (18) in a voice gateway system. However, Carew et al. fail to disclose the combinational limitations of:

- a. Pooling voice server resources provided by a plurality of voice chips in the media gateway, wherein pooling voice server resources includes combining  $M$  voice server cards into the shared pool of voice server resources,  $M$  being an integer, wherein each voice server card includes  $N_m$  voice chips,  $N_m$  being an integer representing the number of voice chips on the  $m$ th voice server card, and each voice chip supports  $k_{mn}$  voice channels,  $k_{mn}$  being an integer representing the number of channels of the  $n$ th voice chip on the  $m$ th voice server card;
- b. for each new call/session originating from the packet network, dynamically allocating a voice chip from the pooled voice server resources wherein dynamically allocating a voice chip from the pooled voice server resources includes allocating the voice chip independently of a remote endpoint assigned to each session;
- c. dynamically assigning a logical resource identifier to each session;
- d. and sending a plurality of voice packets relating to the call/session to the external networks;
- e. terminating a data link layer connection associated with each session at one of a plurality of network interface cards within the media gateway; and

f. processing voice packets associated with each session using the voice chip dynamically assigned to the session, wherein processing voice packets associated with each session using the assigned voice processing resource includes forwarding packets from the network interface card to the voice processing resource using the logical resource identifier assigned to each session and one of more addresses in each received packet and wherein forwarding each packet to the assigned voice processing resource includes forwarding each packet by comparing a destination IP address, destination UDP port, source UDP port combination in each packet to a plurality of local IP address, local UDP port, remote IP address, remote UDP port combinations assigned to active sessions in the media gateway.

Therefore, 2-39, 41, and 42 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WUTCHUNG CHU whose telephone number is (571)270-1411. The examiner can normally be reached on Monday - Friday 1000 - 1500EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on 571 272 7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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